



Information Directorate Overview



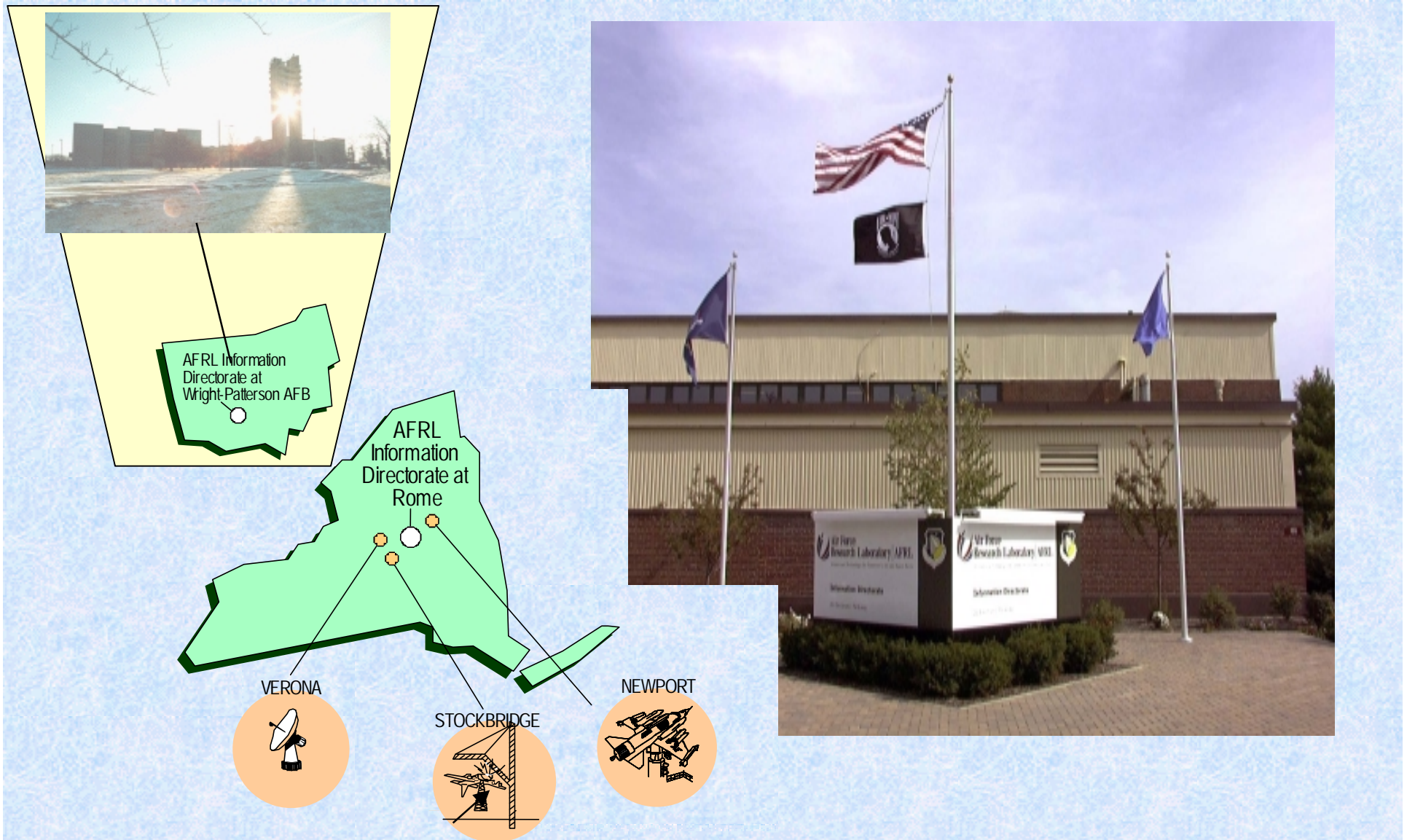


Information Directorate Mission

The advancement and application of Information Systems Science and Technology to meet Air Force unique requirements for Information Dominance and its transition to aerospace systems to meet Air Force needs.



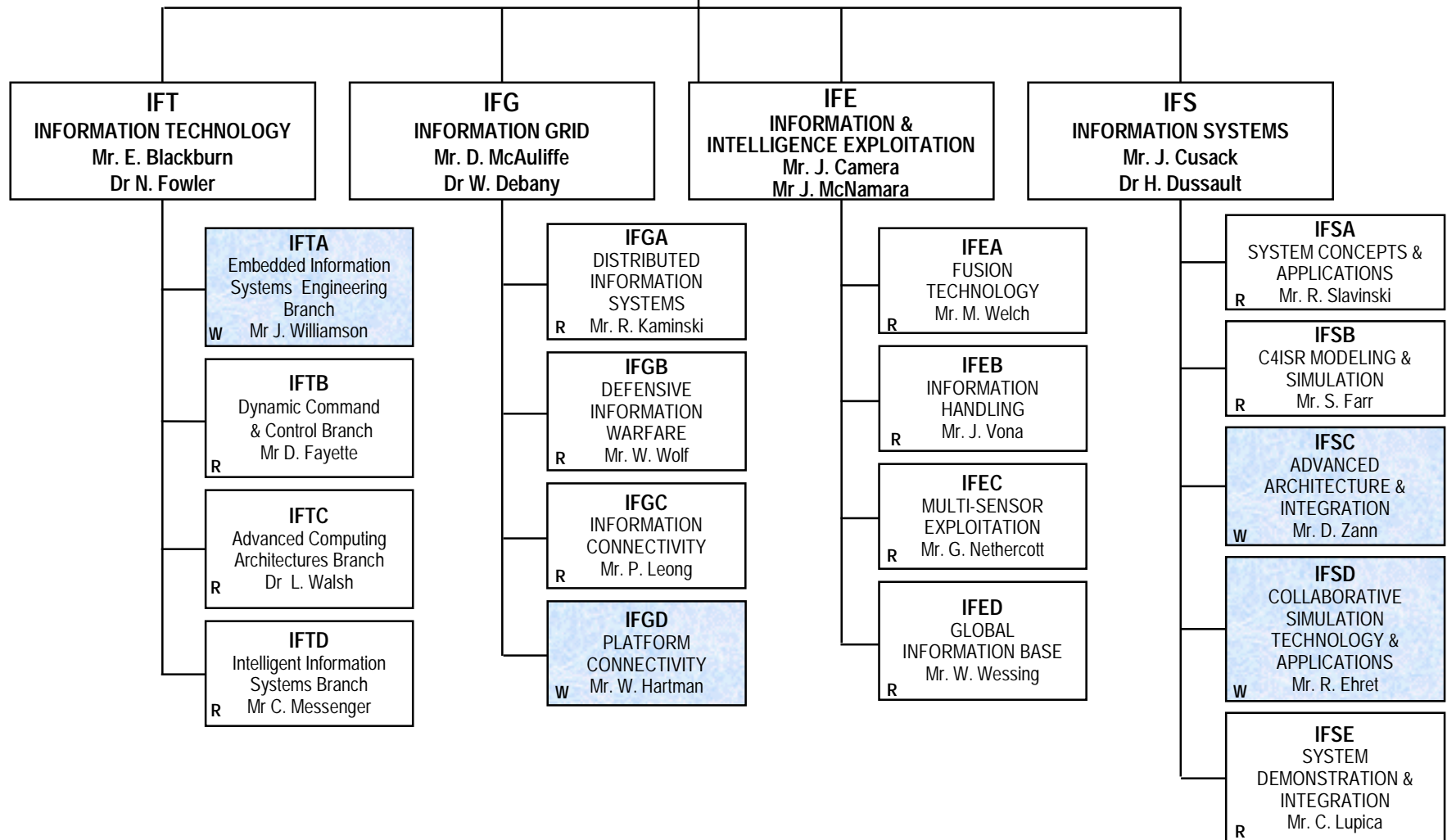
Information Directorate Locations





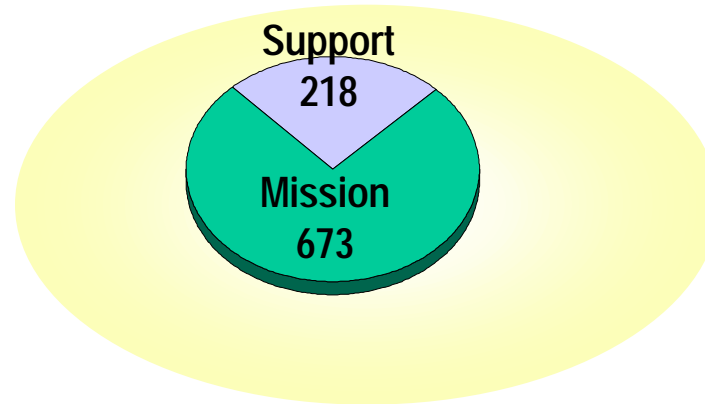
IF INFORMATION DIRECTORATE

Director: Mr. Raymond P. Urtz
Deputy Director: Col John C. Bedford
Chief Scientist: Mr. John A. Graniero

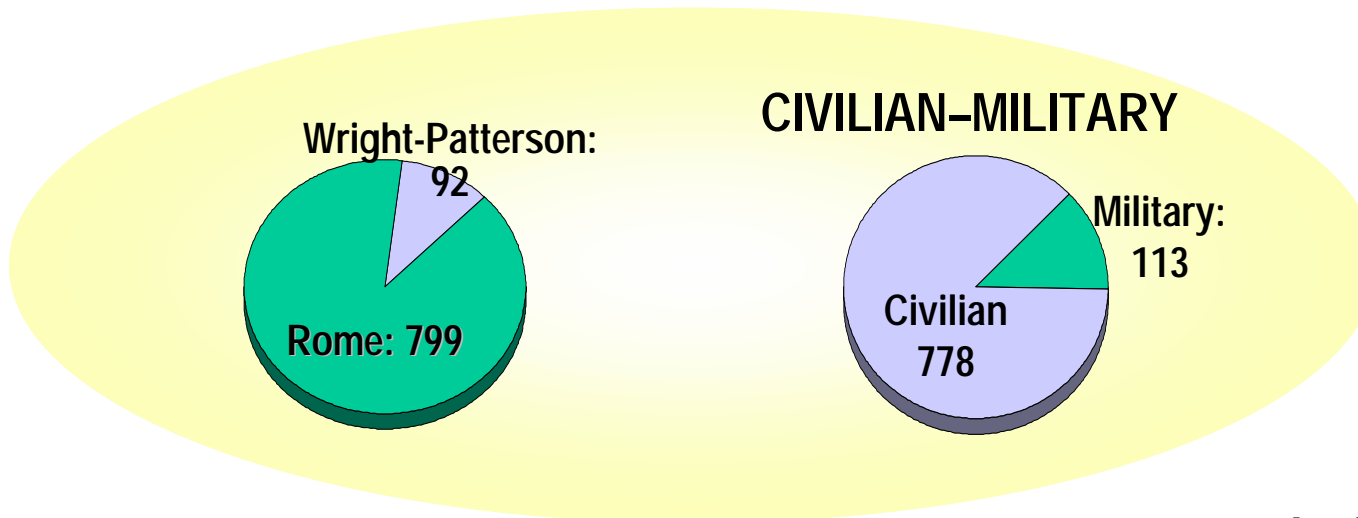




Information Directorate: Personnel Authorizations (FY00)



Total: 891

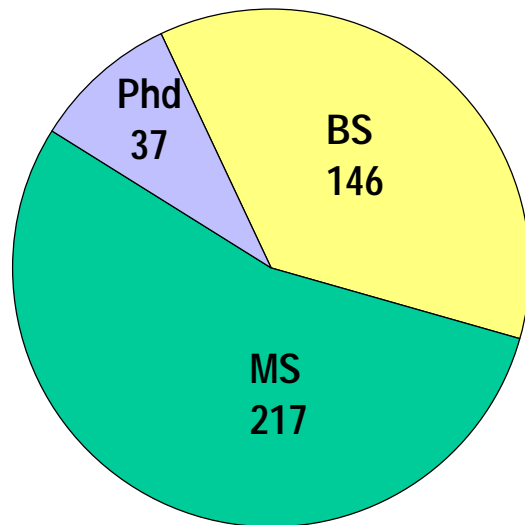


As of: 18 Nov 99



S&E Workforce

FY00



S&E's

- AFRL/IF annually delivers 150 papers at major conferences

- AFRL/IF annually hosts approximately 25 major conferences

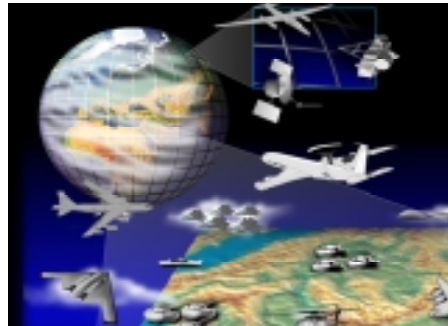


Information Directorate Vision: Information Dominance for Aerospace Superiority

Objectives

Global Awareness:

Provide consistent, integrated battlespace information on demand, tailored to the needs of individual warfighters

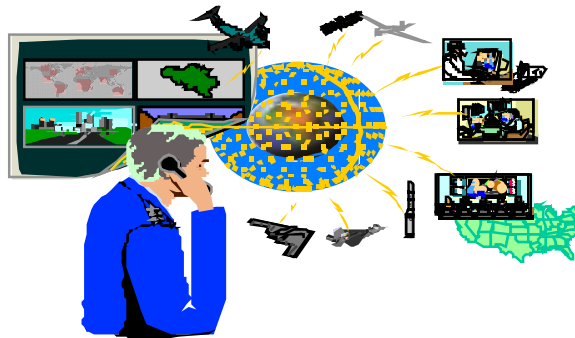


Goals

- Automated exploitation tools 90% accuracy
- Fusion of information into single consistent operating picture providing situational awareness and impact assessment
- Affordable global information base supporting real-time exploitation and fusion

Dynamic Planning & Execution:

Provide commanders with the ability to shape and control the pace and phasing of engagements, exploiting global awareness and global information exchange capabilities



- Capability for predictive planning and preemption, integrated force management and execution
- Capability for real time sensor to shooter operations
- Collaborative, distributed real-time mission planning, training& battlespace simulation

Global Information Exchange:

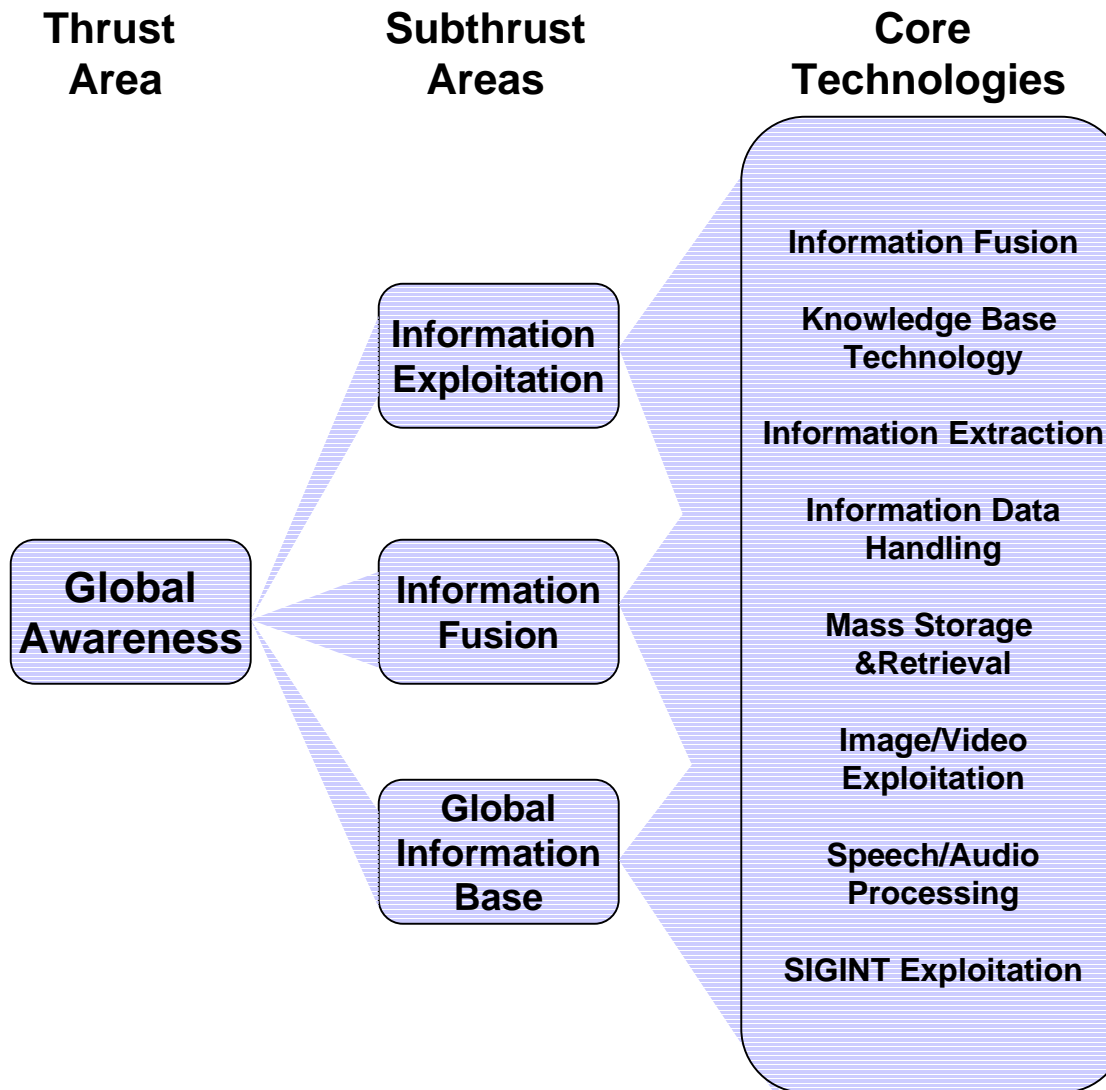
Assure information anywhere, anytime, for any mission through adaptable and scaleable information systems



- Seamless collaborative workspaces
- X1000 increase in global comm to aircraft capability
- Continuous 24hr/day in transit visibility
- world-wide information on demand
- Information Warfare protect, detect, react
- Assured and survivable networking



Program Areas: Global Awareness Thrust





Accomplishments

Global Awareness



Global Awareness entails the affordable operational capability, from local to global levels, allowing all pertinent personnel to understand military relevance situations on a consistent basis with the precision to accomplish the mission.

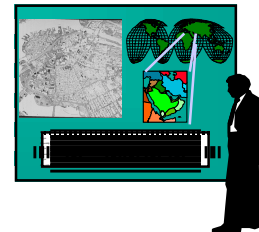


Developed image and video watermarking technology

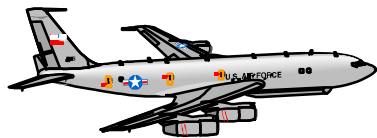
Video mosaic tools fielded for Operation Allied Forces



Aircraft ID based on audio emissions -- in JEFX-99

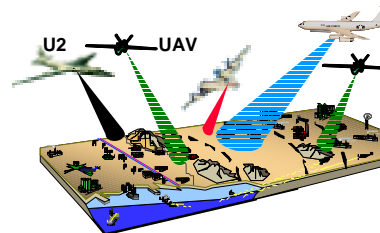


R&D prototype of Intelligence Analyst Associate at NAIC for evaluation - used during Operation Allied Forces



C2-Link in field Beta testing

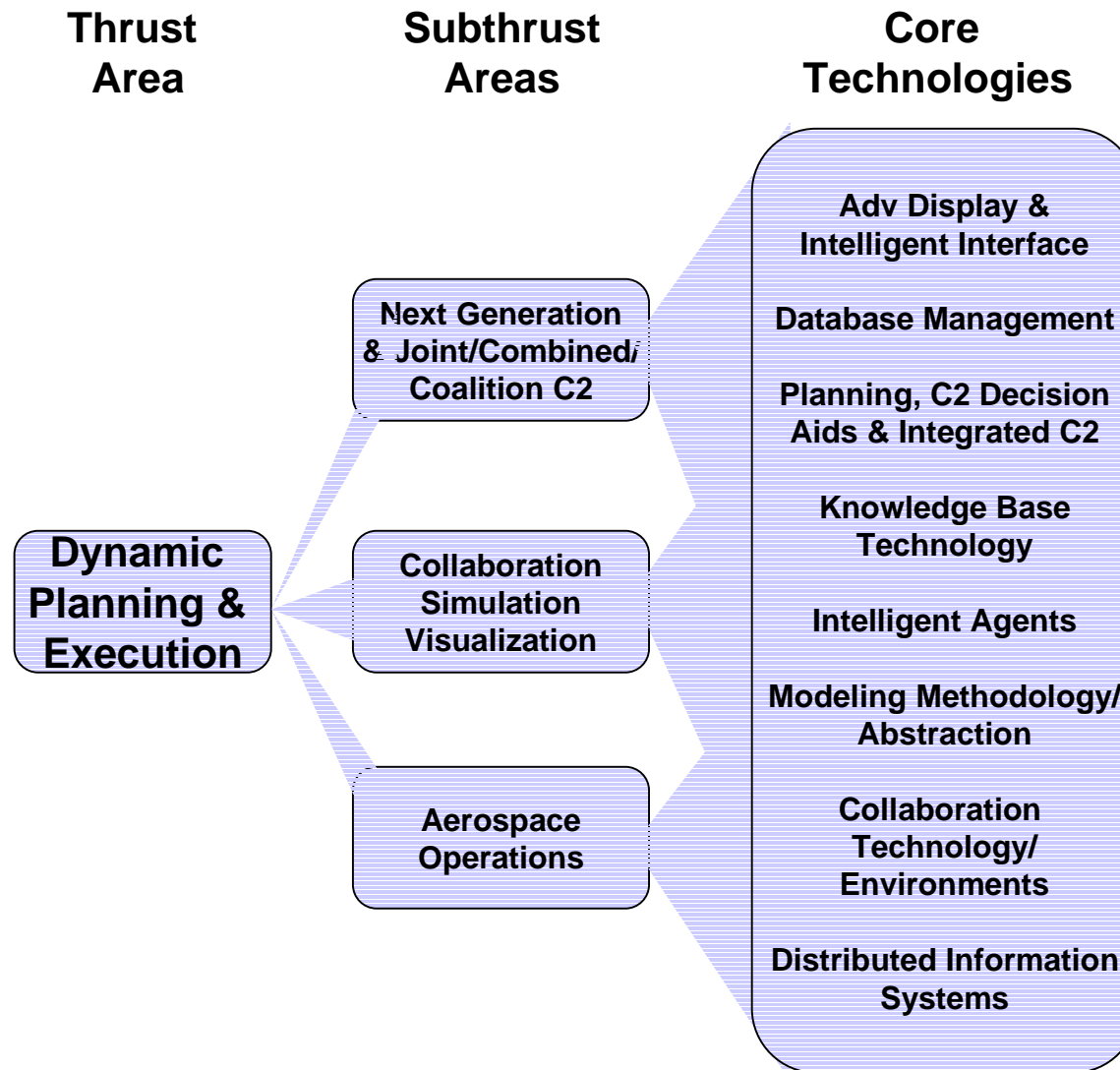
Broadsword integration on J-STARS to bring Intel data bases to on-board operators -- JEFX-99



Moving Target Exploitation tools developed -- online for user evaluation



Program Areas: Dynamic Planning & Execution Thrust



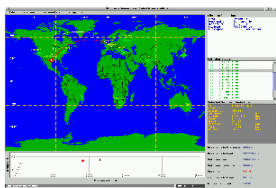


Accomplishments

Dynamic Planning & Execution



Dynamic Planning & Execution is the operational capability to rapidly acquire and exploit superior consistent knowledge of the battlespace in order to shape and control the pace and phasing of engagements



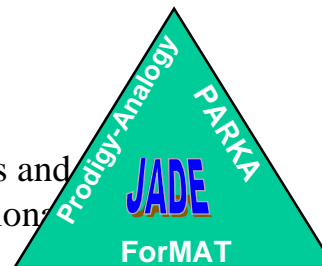
WARP Route Planning
Optimization engine to optimize aircraft routes for fuel and time efficiency



Advanced Airlift Scheduler
Knowledge-based mission Planner and Scheduler being integrated in to AMC CAMPS



SOFPlan Automated System for developing synchronization matrices and execution checklists for SOF operations use

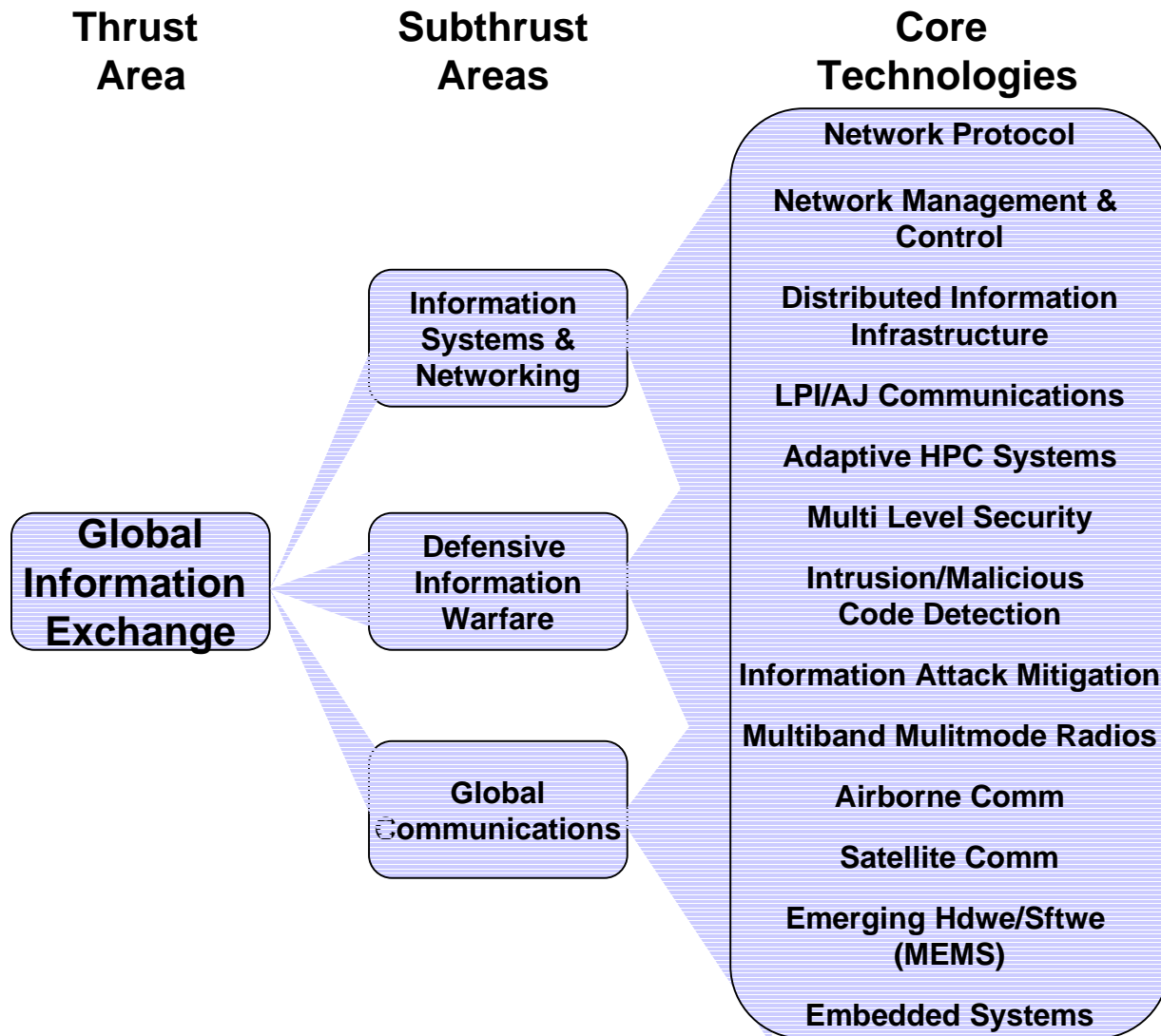


JADE Knowledge-based system which supports the rapid development of deployment plans. 80% solution in less than 1 hour. Basis for AEF Force Movement Planner in the future



Program Areas:

Global Information Exchange Thrust





Accomplishments

Global Information Exchange



Information Grid is the ability to communicate by moving raw and processed information throughout a global communications grid and universal information availability across different transmission media with different characteristics.



Installed prototype of Automated Intrusion Detection Environment (AIDE). AIDE will detect & report computer network intrusions and fuse reports at local, regional, and the national level



Developed and demonstrated first Low Drag **GBS/Milstar receive antenna** for aircraft



Demonstrated **HF digital data communication** to/from air fleet enabling *in-transit visibility* (flight status, fuel, location, weather, telemedicine) surpassing current analog voice-only capability



Demonstrated automated prioritization of transmission bandwidth over a satellite link using **ATM**



Information for the Warrior program demonstrated en route connectivity for Air Mobility Command aircraft in support of in-transit visibility and reachback to the Tactical Airlift Control Center.



Developed and implemented first **software programmable radio** and first **open-architecture** for software programmable radios



New Business Paradigms

- Increase in Cooperative Research and Development Agreements (CRDAs):
98 Total 22 Active
- Increased number of Educational Partnerships:
108 Total 55 Active
- Increase in tempo of technology transfer and technology sharing partnerships



- Not-For-Profit Organization funded by NY S Science & Technology Foundation
- Objectives:
 - Assist in transferring technologies to non-Military markets
 - Develop commercial Products & Services and thereby Create jobs
 - Support NYS Government as Smart Buyer/Advisor
- Major Target Application Markets
 - Information Technologies
 - Law Enforcement Applications
 - Transportation

- Objective:**
- Department of Justice: **National Law Enforcement and Corrections Technology Center**
- Status:**
- Transfer C2 Technology to meet State & Local Law Enforcement and corrections requirements
 - National Law Enforcement and Corrections Technology Center (NLECTC), Established at Rome June 96
 - MOU Between DOJ (Janet Reno) and OSD (John Deutch) Apr 94
- Major Technology Thrusts:**
- Concealed Weapon Detection
 - Audio Processing
 - Time Line Analysis



AF Academy
AFIT
AFRL /IF
Alabama A&M
Carnegie Mellon University
Central Michigan University
Clarkson University
Columbia University
Cornell University
CUNY
Dartmouth College
George Mason Univ.
Illinois Institute of Technology
Iona College
Iowa State University
Louisiana State University
Monmouth College
Nassau Community College
New York Institute of Technology
Oakland University
Ohio State University
Penn State University
Purdue University
Rensselaer Polytechnic Institute
Rochester Institute of Technology

Rutgers University
Sacred Heart University
Southern Polytechnic State University
State University College at Farmingdale
SUNY Albany
SUNY Binghamton
SUNY Buffalo
SUNY Institute of Technology
SUNY Stony Brook
Syracuse University
Temple University
Texas Tech University
University of Akron
University of Alabama
University of Arizona
University of Connecticut
University of Hawaii Hilo
University of Kansas
University of Massachusetts
University of Nevada-Reno
University of North Dakota
University of Rochester
University of Virginia
Utica College
Wright State University



Research Center Vision



- **Increase the overall level of on-site research**
- **Create an Information Research facilities in new building**
- **Use Information Institute as magnet for major collaborators**
- **Supplement Staffing with new hires, IPAs, ST Positions, Research Sabbaticals, Post Doctoral Scientists, National Research Council Associates**

Creating a Research Center for Information



STW-21 Information Directorate

- Potential areas of collaboration (academic and FFRDC partnerships)
 - Information Assurance
 - Information Fusion
 - Modeling & Simulation
 - Knowledge Base Technology
 - Planning & Scheduling
 - Intelligent Agents
 - Collaborative Environments
 - Signal Processing
- Principal Sources: Information Institute & Mitre Corp



STW-21 Information Directorate

- Example: AFRL/Cornell University Information Assurance Institute
 - Focus Areas
 - Information assurance
 - Security
 - Fault tolerance
 - Approach
 - On site funded 6.1/6.2 research
 - Professors, post docs, grad students
 - On-site seminars
 - Personnel exchanges

